

Atty. Docket No. YOR920010539US1
(590.076)

REMARKS

Please note the fact that December 31, 2006, fell on a Sunday, Monday, January 1, 2007 was a Federal Holiday (New Years Day), and Tuesday, January 2, 2007, was a Federal Holiday within the District of Columbia (a National Day of Mourning as proclaimed by the President) ensures that this paper is timely filed within the two month period for response as of today, Wednesday, January 3, 2007 (the next succeeding day which is not a Saturday, Sunday, or Federal Holiday).

Claims 1-21 were pending in the instant application at the time of the outstanding Office Action. Of these claims, Claims 1, 11, and 21 are independent claims; the remaining claims are dependent claims. Claims 1, 11, and 21 have been rewritten. Applicants intend no change in the scope of the claims by the changes made by these amendments. It should also be noted these amendments are not in acquiescence of the Office's position on allowability of the claims, but merely to expedite prosecution.

Claim 1 was objected to in the outstanding Office Action. Claim 1 has been amended to address the typographical issues brought forth. Thus, reconsideration and withdrawal of this objection is respectfully requested.

Claims 1-3, 11-13, and 21 stand rejected under 35 USC § 103(a) as obvious over Passera in view of Kuhn et al. Further, Claims 4-9 and 14-19 stand rejected under 35 USC § 103(a) as obvious over Passera in view of Kuhn et al. Reconsideration and withdrawal of these rejections is respectfully requested.

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**Rejection of Claims 1-3, 11-23, and 21
and Claims 4-9, 10, and 14-19
under 35 U.S.C. § 103(a) (b) over
Passera in view of Kuhn et al.:**

The present invention broadly contemplates, in accordance with at least one presently preferred embodiment, an apparatus for facilitating data clustering. (Page 3, lines 4-5) The apparatus or method of the invention can be executed independent of, or even before the introduction of, a model for the data. The present invention has the ability to obtain raw input data. (Page 3, lines 5-6) Upon obtaining the input data, the present invention is able to create a predetermined number of non-overlapping subsets of the input data. (Page 3, lines 6-7) The creation of the predetermined number of non-overlapping subsets of the input data may be done in a recursive manner using eigen-decomposition to repeatedly split the data sets. (Page 5, lines 3-15) As mentioned above, this clustering of the speech and audio data is executed without any dependency or utilization of a system or model with which to adapt or compare the data. More specifically, the clustering of the data occurs through a recursive process in which the data is first modified to be "zero mean" data. An eigenvector decomposition of this modified data is performed, and the resulting data is split based on a threshold that can split the data in an n-way manner. The clustered data obtained by the invention may then be used in adapting systems or models as is well-known in the art. An application of the instant invention includes the enhancement of a procedure such as the enrollment of target speakers in a speaker verification system by speeding up the training time in the system. (Page 8, lines 1-4) Thus, the present invention facilitates efficient data clustering based on recursion using eigen-decomposition to split the data into separate clusters. As

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shown in the specification, this clustering is performed in such a way that there is no variability in the clustering due to randomness. Rather, the clustering is completely deterministic. (Page 7, lines 4-6)

As best understood, the invention set forth by Passera contemplates a system for creating a description of a model system's behavior by analyzing the sensitivity of the model in subspaces of an input space of the model. (Column 2, lines 1-4) Initially, Passera creates a model by selecting a kind of model appropriate for the problem at hand. Given the problem and model, Passera identifies and standardizes input fields that affect the solution to the defined problem. A training data set is generated and applied to the model using a training procedure and the model is created. Then an input data set is generated, possibly from the training data set, and is input to a sensitivity analysis module which determines sensitivity measures. (Column 3, lines 2-30) The sensitivity analysis provides a profile of the input space of the model corresponding to the sensitivity of the outputs of the model with respect to the inputs to the model. (Column 2, lines 4-7) A data splitting module receives the input data set and the sensitivity measures and splits the input data set into subspaces according to the sensitivity profile defined by the sensitivity measures. (Column 4, lines 58-63)

The sensitivity analysis system of Passera is in stark contrast to the present invention. As discussed in the specification and in the independent claims, the instant invention obtains input data and facilitates data clustering of that input data independent of any model wherein the splitting of the input data into a predetermined number of non-

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overlapping subsets occurs independent of a model; wherein there is no variability in the clustering due to randomness. (emphasis added)

Passera initially selects a model, trains data to that model, and then, utilizing the model, performs a sensitivity analysis which further splits the data in order to better understand the behavior of the model. Specifically, the sensitivity measures which select the threshold upon which the data is split in Passera (column 5, lines 34-49, Figure 4) are obtained by applying input test data to a model and calculating values based on the output data received from the model. (column 3, lines 29-54)

It is respectfully submitted that Passera clearly falls short of present invention (as defined by the independent claims) in that, *inter alia*, it does not disclose facilitating data clustering of input data independent of any model wherein the splitting of the input data into a predetermined number of non-overlapping subsets occurs independent of a model. Further, it is respectfully submitted that there is no indication that Passera teaches or suggests clustering in such a way as to prevent variability in the clustering due to randomness.

Kuhn et al. does not overcome the deficiencies of Passera set forth above. In column , lines 55-65, Kuhn utilizes a time factor in his calculations that models the variability of a speaker over time. Thus, Kuhn takes into account speaker variability, explaining that the more time-varying a particular eigendimension is, the more weight will be put on the prior in that dimension. The remarks in the previous Amendments due to the inappropriateness of combining Kuhn with Passera are equally applicably here.

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Over and above the lack of connection to the instant invention, Kuhn et al. is a model-dependent system, thus making it inapplicable as prior art to the invention.

A 35 USC 103(a) rejection requires that the combined cited references provide both the motivation to combine the references and an expectation of success. Not only is there no motivation to combine the references, no expectation of success, but actually combining the references would not produce the claimed invention. Thus, the claimed invention is patentable over the combined references and the state of the art. Thus, it is respectfully submitted that the combination of Passera with Kuhn et al would not produce the claimed invention.

Response After Final:

Applicants respectfully submit that the current Amendment After Final presents no new issues of patentability with respect to the independent claims and as such the current amendment may be properly entered by the Examiner under 37 C.F.R. § 1.116. Applicants respectfully request that the Examiner enter and consider the current amendment. Furthermore, this Amendment will not result in any alteration of the prior art used to reject any dependent claim whose scope may have been changed by this Amendment in the unlikely event that the Examiner finds the independent claims to be unallowable.

The Passera and Kuhn et al. references are the only references the Office has applied to reject the claims in four office actions, including one Request for Continued

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Examination. This fact, coupled with the at least two previous two searches and the Office's own explanation of the field of search,

The field of search should extend to all probable areas relevant to the claimed subject matter and should cover the disclosed features which might reasonably be expected to be claimed.

MPEP § 904.02(a), make it clear that the current Amendment requires no further search and consideration on the part of the Examiner beyond consideration of Applicants' foregoing Remarks and as such the Amendment should be entered.

Conclusion:

In view of the foregoing, it is respectfully submitted that independent Claims 1, 11, and 21 fully distinguish over the applied art and are thus allowable. By virtue of dependence from Claims 1 and 11, it is thus also submitted that Claims 2-10 and 12-20 are also allowable at this juncture.

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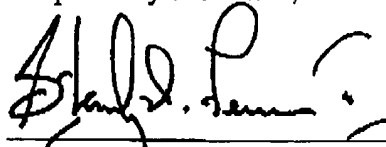
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In summary, it is respectfully submitted that the instant application, including Claims 1-21, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited. Applicants' undersigned attorney would welcome further discussion with the Office by telephone in the event there are any further issues in this application.

Respectfully submitted,



Stanley D. Ference III
Registration No. 33,879

Customer No. 35195
FERENCE & ASSOCIATES
409 Broad Street
Pittsburgh, Pennsylvania 15143
(412) 741-8400
(412) 741-9292 - Facsimile

Attorneys for Applicants